LAFAYETTE

HE-55

SQUELCHER

OPERATING MANUAL

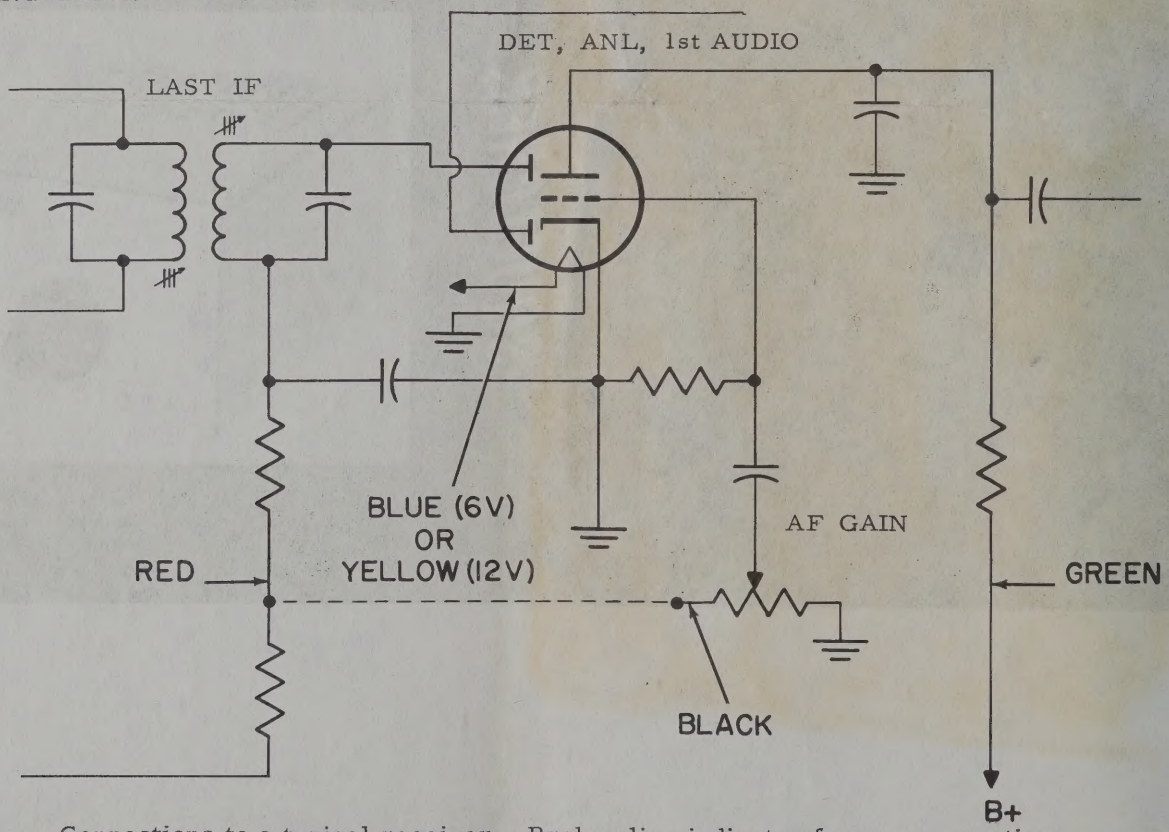
The Lafayette "Squelcher" is designed for use with most superheterodyne communications receivers and Citizens Band transceivers. It is not intended for use with super-regenerative or transistorized types. Incorporating a squelch control plus an efficient automatic noise limiter, the "Squelcher" will quiet the receiver under no-signal conditions and also reduce static or ignition noise during signal reception. Detailed instructions have been provided for the connection of this unit to the following Lafayette units: HE-20, HE-20A, HE-30, HE-45, HE-50, KT-320. A general installation procedure is also included which will provide an indication of proper connection points in most other receiver circuits. Figures 1 and 2 will be particularly useful in this respect.

GENERAL INSTALLATION PROCEDURE

Essentially, the Squelcher is inserted between the detector output and the audio volume control in a receiver. The circuit normally connecting these two points must be opened. The RED shielded lead is then connected to the detector output and the BLACK shielded lead to the high side of the volume control.

The GREEN lead is connected to a convenient B + point in the receiver (100-220V). The "Squelcher" can be operated from either a 12 volt or 6 volt filament supply. If the receiver employs 12V tubes, connect the YELLOW lead to the 12 volt side of the filament line and tape up the BLUE lead. If the receiver employs 6V tubes, connect the BLUE lead to the 6 volt side of the filament line and ground the YELLOW lead. In certain mobile receivers, filaments are so arranged as to accommodate either a 12V or 6V supply. In such cases, connect the YELLOW lead to the 12V segment of the filament string and the BLUE lead to the 6V segment. The "Squelcher" should never be connected to AC-DC receivers or units with series filaments. In receivers using two 6V tubes in series across a 12 volt line, connect the YELLOW to the 12 volt point and tape up the BLUE lead.

Each shield must be connected to a suitable chassis ground in the receiver. TO AVOID SHORT CIRCUITS, IT IS RECOMMENDED THAT ALL EXPOSED SHIELDING BE COVERED WITH INSULATING TAPE.



Connections to a typical receiver. Broken line indicates former connection.

FIGURE 1

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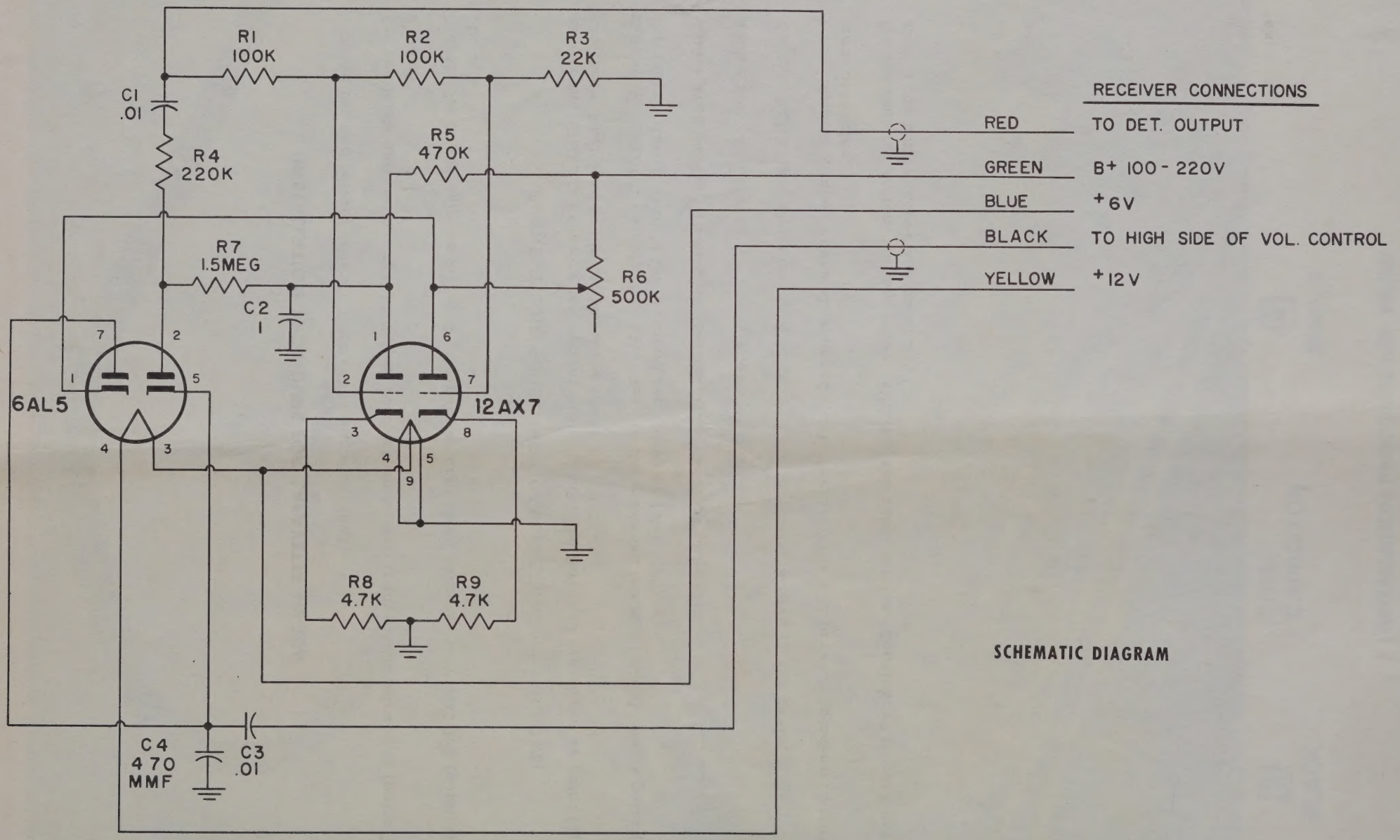


SCHEMATIC DIAGRAM

FIGURE 2

INSTALLATION PROCEDURE FOR LAFAYETTE HE-20A

1. Remove top and bottom cover. Turn chassis upside-down.

2. Cut the leads and remove the 220K ohm resistor connected from the terminal lug (point 7) to ground.

3. Cut the leads and remove the .001 μf capacitor connected from the terminal lug (point 3) to V5 pin 3.

CONNECT THE SQUELCHER CABLE LEADS AS FOLLOWS:

4. Solder the SHIELD covering the red lead to the grounded terminal lug shown as point (1). Solder the inner RED lead to the terminal lug shown as point (2).

5. Solder the SHIELD covering the black lead to the grounded terminal lug shown as point (4). Solder the inner BLACK lead to the terminal lug shown as (3).

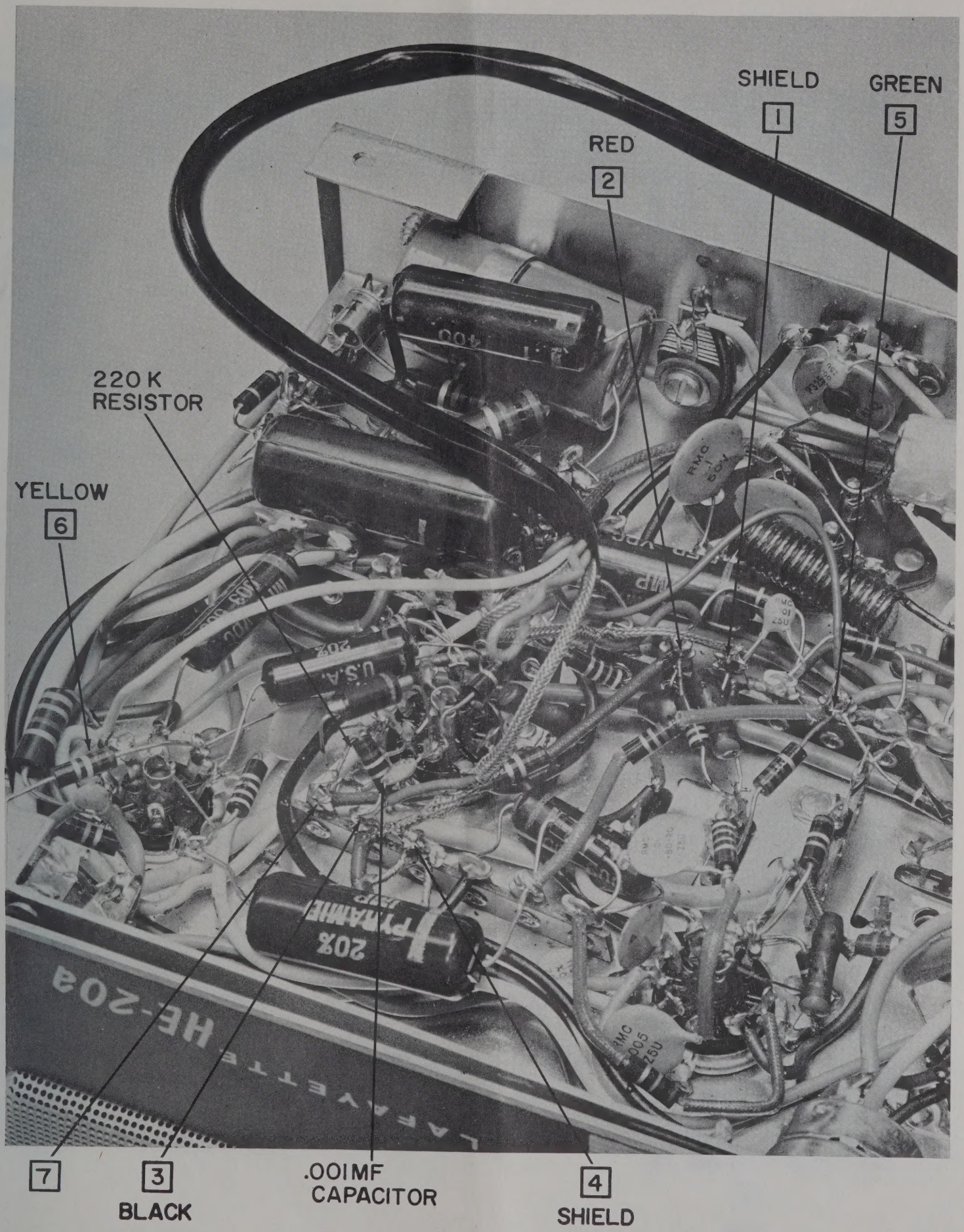
6. Solder GREEN lead (B+) to the terminal lug shown as point (5).

7. Solder the YELLOW to V6 pin 3, shown as point (6)

8. Cut the BLUE lead short and tape back over the insulating sleeve on the cable.

9. Using insulating tape, cover all exposed shield braid. This will prevent accidental short-circuits from occurring.

10. Reassemble the bottom and top cover, allowing the cable for the "Squelcher" to pass between one side of the bottom cover and chassis.



INSTALLATION PROCEDURE FOR HE-20A

INSTALLATION PROCEDURE FOR LAFAYETTE HE-45 AND HE-50

1. Disassemble the transceiver as follows:

    a) Remove the (2) screws holding the front panel to the top shell.

    b) Remove the (2) screws, on each side piece, holding bottom base to top shell.

    c) Slide shell upward to remove top shell.

    d) Remove the (4) screws, on cabinet bottom, holding the chassis to the bottom plate.

    e) Remove bottom base plate.

2. Remove (entirely) the shielded cable connected between the high side of the volume control and pin 1 or 2 (either is possible) of V5, 6CN7. Do not attempt to unsolder the leads -- use side-cutters to clip them off. The center conductor at each end of this cable will be found connected to points (1) and (2).

3. Remove the .02 μf capacitor connected between pin 1 or 2 of V5 and a terminal lug by cutting at points (3) and (4).

4. Remove the white lead connected between the Noise Limiter control and Volume control at points (5) and (2).

CONNECT THE SQUELCHER CABLE AS FOLLOWS:

5. Connect the shielded RED lead to the terminal lug shown as point (4).

6. Connect the SHIELD of the Red lead to the grounded terminal lug shown as point (6).

7. Connect the shielded BLACK lead to the lower volume control lug shown as point (2).

8. Connect the SHIELD of the Black lead to the upper lug on the volume control shown as point (7).

9. Connect the YELLOW lead to pin 5 of V4, shown as point (8).

10. Cut the BLUE lead short and tape back over cable sheath.

11. Connect the GREEN lead to the terminal lug shown as point (9).

12. Using insulating tape, cover all exposed shield braid. This will prevent accidental short-circuits from occurring.

13. Reassemble the transceiver covers, allowing the cable for the squelcher to pass out of the rear of the chassis at one corner.

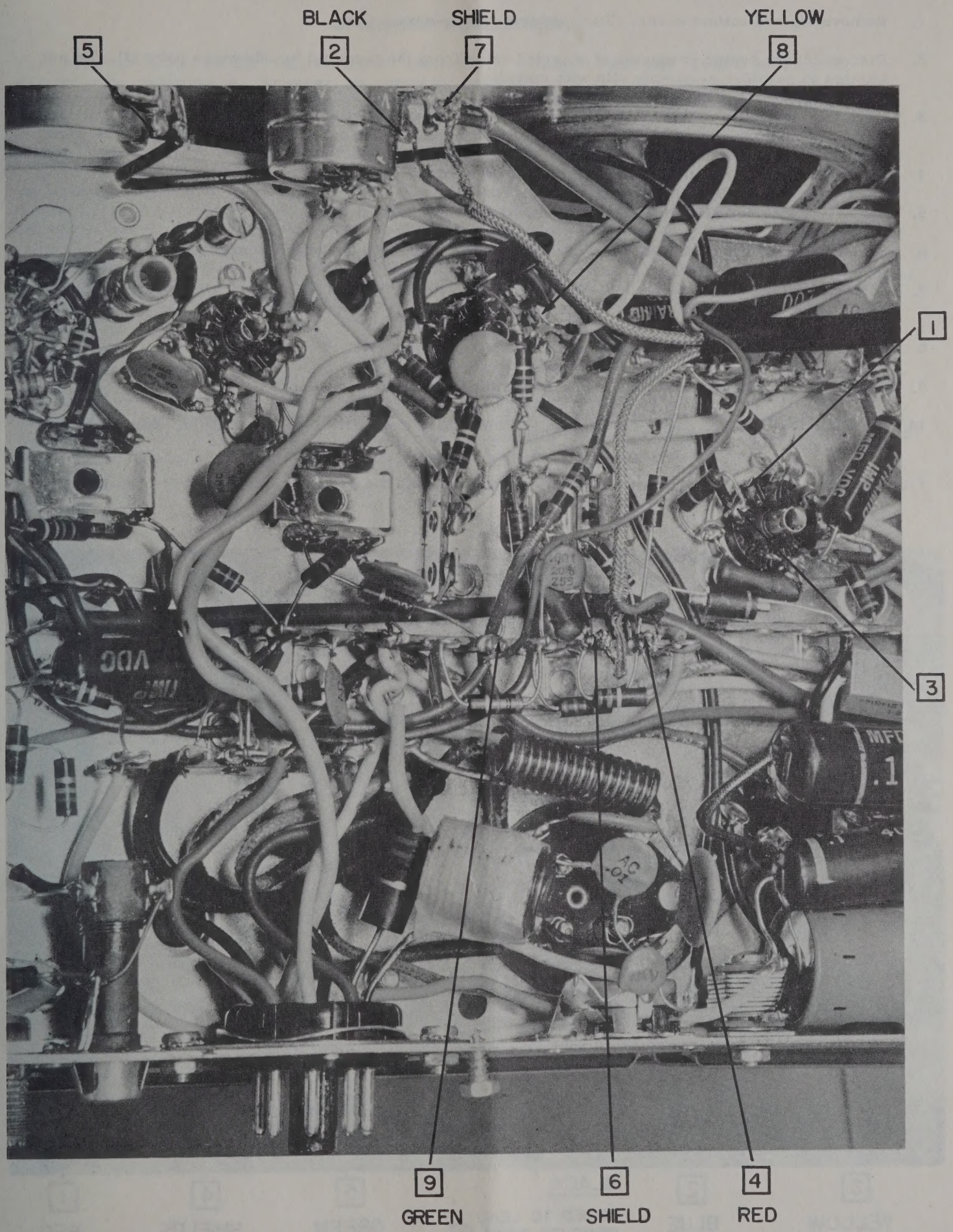
NOTICE

HE-55 SQUELCHER

Tests have shown that the HE-55 will not operate efficiently with Lafayette HE-15(A) and HE-15(B) transceivers. Therefore, no instructions have been provided for connection of the HE-55 to these units.

The instructions given for connection of the HE-55 to the Lafayette HE-20A transceiver are also applicable to the HE-20 and HE-20B.

The instructions given for HE-45 are also applicable to the HE-45A.


BLACK
2
SHIELD
7
YELLOW
8
5
1
3
9
GREEN
6
SHIELD
4
RED

INSTALLATION PROCEDURE FOR LAFAYETTE HE-30 AND KT-320

1. Remove top and bottom cover. Turn chassis upside-down.

2. Disconnect the center conductor of shielded cable from the terminal lug shown as point (1). Do not attempt to unsolder -- simply clip with cutters.

3. Bare the end of the center conductor (removed above) and twist around the bare end of the shielded BLACK lead from the squelcher. Solder this connection, then tape it over to cover the bare wire.

4. Solder the SHIELD of the Black lead to the grounded terminal lug shown as point (4).

5. Solder the shielded RED lead to the terminal lug shown as point (1).

6. Solder the SHIELD of the Red lead to the grounded terminal lug shown as point (4).

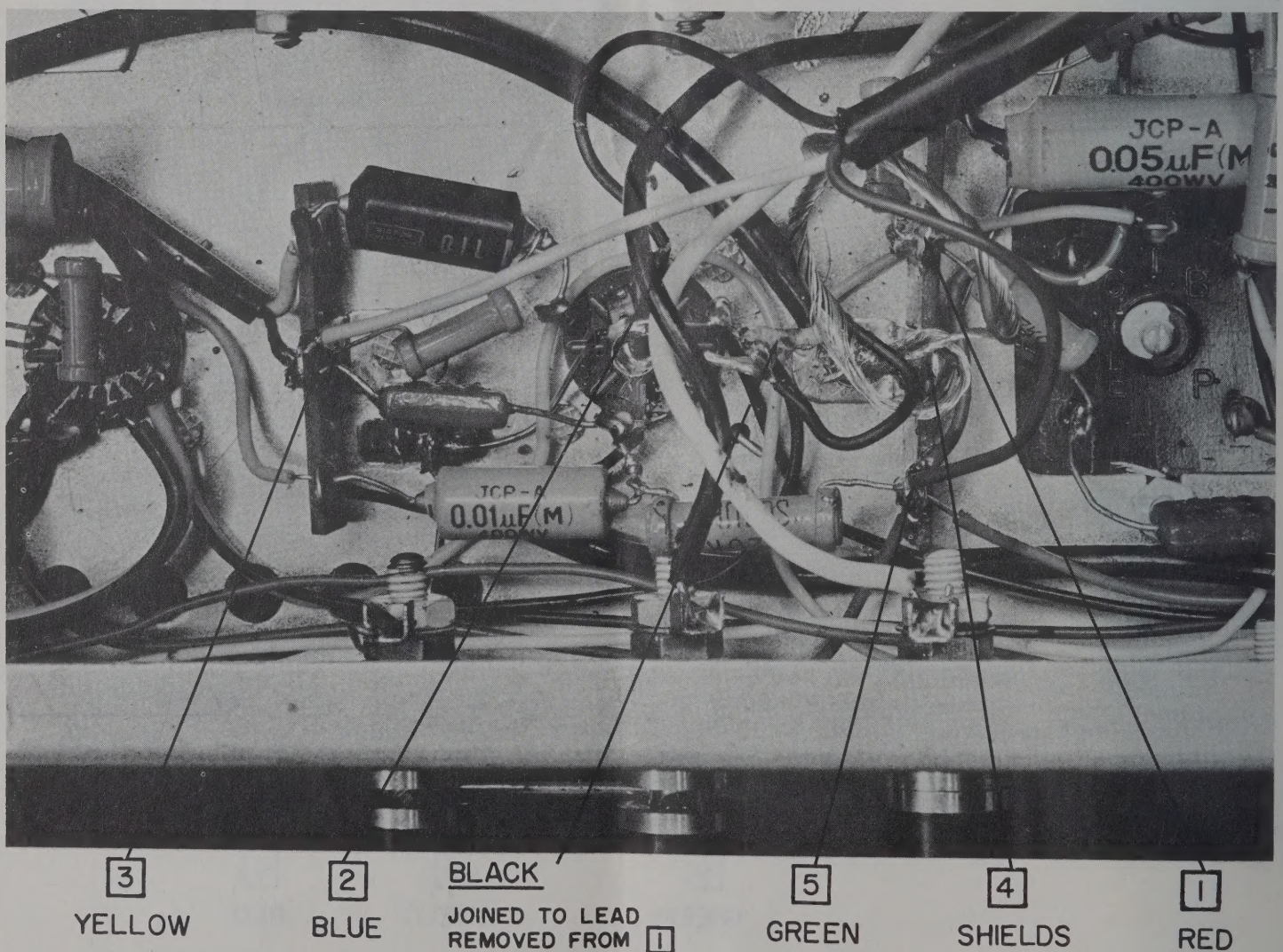
7. Solder the BLUE lead to pin 3 of V7, shown as point (2). CAUTION: If pin 3 is grounded, connect to pin 4, not pin 3.

8. Solder the GREEN lead to the terminal lug shown as point (5).

9. Solder the YELLOW lead to the grounded terminal lug shown as point (3).

10. Using insulating tape, cover all exposed shield braid. This will prevent accidental short-circuits from occurring.

11. Reassemble the receiver top and bottom covers, allowing the cable for the Squelcher to pass out of the rear of chassis at one corner.



OPERATING INSTRUCTIONS

Turn receiver on and set the "SQUELCHER" control fully counter-clockwise. In this position, no squelch action takes place. However, an automatic noise-limiting circuit is incorporated into the "Squelcher" which effectively reduces noise from static and ignition systems, without impairing the quality of the audio signal.

NOTE: If the receiver is equipped with a squelch control, open it fully for maximum sensitivity.

To adjust the "Squelcher" control properly, tune the receiver off-signal so that only background noise is heard. Turn the control clockwise until the noise just disappears. At this point, even a weak signal will be heard. This is the "threshold" point. Further advancement of the control will take out some of the weaker signals along with the noise. If noise level is higher than the desired signal, the setting of the control must be reduced or the signal will be lost. In such a case, some noise will have to be tolerated -- most of the noise, however, will have been eliminated by the "Squelcher". Familiarity with the operation of the "Squelcher" will soon enable you to use it with maximum efficiency.

MOBILE RECEIVERS

The "Squelcher" will effectively eliminate pulse-type electrical noise in the receiver. However, noise produced by generators will not be removed by the "Squelcher" and is therefore recommended that you install a .1 μf feed-through capacitor (such as the Lafayette SP-221 or SP-222) on the generator armature terminal (in place of the small capacitor sometimes found in this position).

MOUNTING THE "SQUELCHER"

The "Squelcher" has been designed to permit direct mounting on the receiver or other suitable location such as under the dashboard of a car. Mounting should be carried out after wiring the unit to the receiver. Procedure for mounting is as follows:

1. Remove the cover (four screws).

2. Four holes are provided in the bottom of the chassis. Drill four corresponding holes in the mounting surface.

3. Use the four #6 sheet metal screws to attach the chassis to the mounting surface. Use great care when tightening the screws or damage to components may result. If necessary, remove the tubes temporarily. Be sure, however, to return them to their proper sockets.

4. Replace the cover.

SERVICING

When connected to the receiver, the "Squelcher" becomes an integral part of the circuit. Should your receiver fail to operate properly at any time, remember to check the tubes in the "Squelcher" in addition to those in the receiver. With the exception of normal tube replacement, very little service should be required for this unit.

INSTALLATION PROCEDURE FOR LAFAYETTE HE-90

1. Remove the chassis from its cabinet.

2. Current units are equipped with a hole in the rear apron of the chassis and another at the rear of the cabinet. These will allow the HE-55 cable to pass through the chassis and cabinet. If your unit does not have these holes, you must drill them yourself. The view of the underside wiring of the HE-90 shows the location of the 3/8" hole required in the rear apron. For neatness you may use a rubber grommet as shown. Drill a slightly larger hole (3/4") in the rear of cabinet, making sure both holes line up.

3. Locate the 220K ohm resistor (red-red-yellow-silver) wired from point (1) to chassis ground. Make sure you identify the resistor correctly -- another 220K ohm resistor is located nearby (the one with insulating sleeving over its wire leads) which must not be removed. When you located the proper resistor, cut its leads and remove the resistor.

4. Locate the 0.001 μf capacitor wired from pin 3 of 6T8A, shown as point (3), to a terminal strip lug shown as point (2). Cut the leads and remove this capacitor.

CONNECT THE HE-55 CABLE LEADS AS FOLLOWS:

5. Pass the free end of the HE-55 cable through the hole provided in the rear of the cabinet (pass the cable through from the outside of the cabinet).

6. Now, pass the cable through the hole provided in the rear apron of the chassis. Connect the free ends of the cable leads as indicated next.

7. Connect the BLUE lead to V6 pin 4, shown as point (4). This is a 6 volt point in the heater wiring.

8. Connect the GREEN lead to the B+ point at the terminal shown as point (5).

9. Connect the YELLOW lead to the V6 pin 3, shown as point (6).

10. Connect the RED lead to the terminal shown as point (1). Notice that a 1N34A diode is also connected to this point.

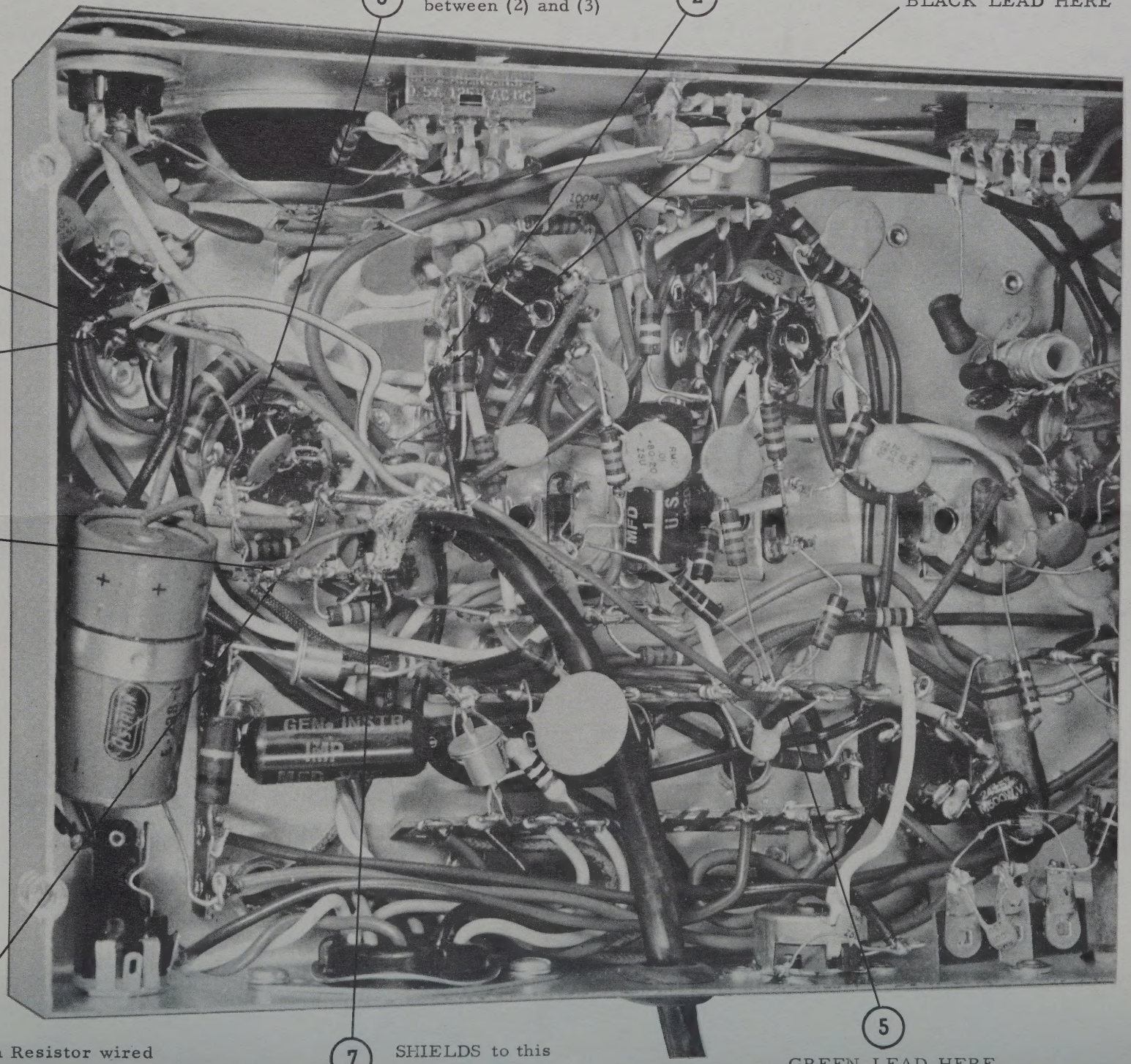
11. Connect the BLACK lead to the terminal shown as point (2). Notice that this point is connected, via a shielded cable, to the high side of the volume control.

12. Solder the SHIELD covering the RED lead and the SHIELD covering the BLACK lead to the grounded terminal shown as point (7).

13. To prevent possible short-circuits, use insulating tape over all exposed shielding. Also, check all wiring for correctness.

14. Slip the cabinet back over the chassis and reassemble.

15. Follow the operating instructions in the HE-55 manual on page 9.


3
Remove capacitor wired between (2) and (3)
2
BLACK LEAD HERE
4
BLUE LEAD HERE
6
YELLOW LEAD HERE
RED LEAD HERE
1
Remove 220K ohm Resistor wired from here to chassis ground
7
SHIELDS to this grounded terminal
5
GREEN LEAD HERE

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